NGUYEN Quang-Duy

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"I may stutter in speaking, but not in philosophizing, inventing, and empathizing."

Education

2017 – 2020 **PhD in Computer Science**
École Doctorale des Sciences Pour l'Ingénieur, University Clermont-Auvergne, France
UR TSCF, MathNUM departement, INRAE (Irstea), Clermont-Ferrand, France
Funding : Scholarship from the region Auvergne-Rhône-Alpes and FEDER
PhD defense : 16/07/2020

2014 – 2015 **Master 2 in Computer Networking**
University Claude Bernard Lyon I, France
Funding : (1) Scholarship AUF-IFI ; (2) Grant from IdEx of University of Strasbourg
Note : 15.31/20.00 - Rank : ***1/60***

2013 – 2014 **Master 1 in Computer Science**
Institut de la Francophonie pour l'Informatique (IFI), Vietnam National University, Hanoi
Funding : Scholarship AUF-IFI
Note : 14.20/20.00

2007 – 2012 **Engineer of Information Technology in Computer Engineering**
Hanoi University of Science and Technology, Vietnam
Note : 14.96/20.00

Experience

12/2021 – present **Postdoctoral Researcher → Researcher**
LSEA laboratory, DILS department, CEA List, Palaiseau, France
Project : (1) LocalSEA ; (2) CoGeFlux ; (3) OTPaaS ; (4) List Tech Days : F&3D DTs ; (5) APS : INTEROP ; (6) TARGET-X : Ros6GBUSBridge ; (7) RAASCEMAN
Keywords : Industry 4.0/5.0, AAS, Papyrus, Manufacturing, Testbed, ROS 1/2

10/2020 – 09/2021 **Postdoctoral Researcher**
LTCI laboratory, INFRES department, Télécom Paris, Palaiseau
Project : OPC UA PubSub for Caméléon
Keywords : IIoT, SNCF, OPC UA, Embedded System, Zephyr OS, Node-RED, C

01/2017 – 07/2020 **PhD Student**
UR TSCF, MathNUM departement, INRAE
Project : (1) ConnecSens ; (2) AgroTechnoPôle
Keywords : Agriculture, IoT, Ontology, Reasoning, OWL, SWRL, Java, Python

08/2016 – 10/2016 **Research Engineer**
Programmation, Networks and Systems team, LaBRI laboratory, Bordeaux, France
Project : Le Palais de la Mémoire
Keywords : Sounds, Method of Loci, Beacons, BLE, Android, Java

04/2015 – 07/2016 **Master 2 Intern → Research Engineer**
Networks team, ICube laboratory, Strasbourg, France
Project : FIT/IoT-lab
Keywords : Multihoming, Mobility, Contiki, TelosB, Python, C/C++

Publications*

Summary
First-authored items : 15/19
G-Scholar Citations : 90
H-index : 6
I-index : 5
ISI-indexed Items : 11
Scopus-indexed Items : 17
Items classified by SJR :
Q1 (1), **Q2** (2),
Q3 (0), **Q4** (1)
Items classified by domains :
IoT (8), **OPC UA** (7),
Ontology (5), **AAS** (4)

[CI.12] **Quang-Duy Nguyen**, and Saadia Dhouib, *"Lessons from Developing AAS Digital Twins for Factory Buildings with Papyrus4Manufacturing"*, Proceedings of the 3rd IEEE Industrial Electronics Society Annual Online Conference (ONCON), Virtual, 12/2024

[CI.11] **Quang-Duy Nguyen**, Yining Huang, Guéréguin Der Sylvestre Sidebe, and Saadia Dhouib, *"From Multiple Digital Twins to a Multi-Faceted Digital Twin : Towards an AAS-Based Approach"*, Proceedings of the 29th International Conference on Emerging Technologies and Factory Automation (ETFA), Padova, Italy, 09/2024

[CI.10] **Quang-Duy Nguyen**, Saadia Dhouib, Eric Lucet, Antoine Le Mortellec, and Fabien Baligand, *"Bridging the Gap between IT and OT with AAS Digital Twins and MDE Techniques : An Industrial Waste Management Case Study"*, Proceedings of the 29th International Conference on Emerging Technologies and Factory Automation (ETFA), Padova, Italy, 09/2024

[JI.4] **Quang-Duy Nguyen**, Yining Huang, François Keith, Christophe Leroy, Minh-Thuyen Thi, and Saadia Dhouib, *"Manufacturing 4.0 : Checking the Feasibility of a Work Cell Using Asset Administration Shell and Physics-Based Three-Dimensional Digital Twins"*, MDPI Machines, 01/2024

[JI.3] Fadwa Rekik, Saadia Dhouib, and **Quang-Duy Nguyen**, *"Bridging the Gap between SysML and OPC UA Information Models for Industry 4.0"*, Journal of Object Technology, 07/2023

[CI.9] **Quang-Duy Nguyen**, Saadia Dhouib, Yining Huang, and Patrick Bellot, *"An Approach to Bride ROS 1 and ROS 2 Devices into an OPC UA-based Testbed for Industry 4.0"*, Proceedings of the 1st IEEE Industrial Electronics Society Annual Online Conference (ONCON), Virtual, 12/2022

[CI.8] **Quang-Duy Nguyen**, Saadia Dhouib, and Patrick Bellot, *"A Unified Method to Design Bridges for OPC UA PubSub Networks in the Industrial IoT"*, Proceedings of the 27th IEEE International Workshop on Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), Paris, France, 11/2022

[CI.7] **Quang-Duy Nguyen**, Saadia Dhouib, Kunal Suri, and Fadwa Tmar, *"From Requirement Specification to OPC UA Information Model Design : A Product Assembly Line Monitoring Case Study"*, Proceedings of the 20th IEEE International Conference on Industrial Informatics (INDIN), Perth, Australia, 07/2022

[CI.6] **Quang-Duy Nguyen**, Patrick Bellot, and Pierre-Yves Petton, *"An OPC UA PubSub Implementation Approach for Memory-Constrained Sensor Devices"*, Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE), Anchorage, United States, 06/2022

[CI.5] **Quang-Duy Nguyen**, Fadwa Tmar, Yining Huang, and Saadia Dhouib, *"Early Lessons Learned from the Development of a Local OPC UA-based Robotic Testbed for Research"*, Proceedings of the 31st IEEE International Symposium on Industrial Electronics (ISIE), Anchorage, United States, 06/2022

[CI.4] **Quang-Duy Nguyen**, Saadia Dhouib, Jean-Pierre Chanet, and Patrick Bellot, *"Towards a Web-of-Things Approach for OPC UA Field Device Discovery in the Industrial IoT"*, Proceedings of the 18th IEEE International Conference on Factory Communication Systems (WFCS), Pavia, Italy, 04/2022

[CI.3] **Quang-Duy Nguyen**, Catherine Roussey, Patrick Bellot, and Jean-Pierre Chanet, *"Stack of Services for Context-Aware Systems : An Internet-Of-Things System Design Approach"*, Proceedings of the 15th IEEE International Conference on Computing and Communication Technologies (RIVF), Hanoi, Vietnam, 08/2021

[T.1] **Quang-Duy Nguyen**, *"Interoperability and Upgradability Improvement for Context-Aware Systems in Agriculture 4.0"*, PhD thesis, University Clermont-Auvergne, France, 2020

[JI.2] Julian Eduardo Plazas, Sandro Bimonte, Christophe de Vaulx, Michel Schneider, **Quang-Duy Nguyen**, Jean-Pierre Chanet, Hongling Shi, Kun Mean Hou, and Juan Carlos Corrales, *"A Conceptual Data Model and its Automatic Implementation for IoT-Based BI Applications : UML Profile and MDA Approach"*, IEEE Internet of Things Journal, 10/2020

* T : Thesis ; J : Journal ; C : Conference/Workshop Paper ; P : Patent ; I : International ; F : Francophone

[CF.2] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vaulx, Jean-Pierre Chanet, and Camille Noûs, *"CASO et IRRIG deux ontologies pour le développement de systèmes contextuels : cas d'usage sur l'automatisation de l'irrigation"*, Actes des 31es journées francophones d'Ingénierie des Connaissances (IC), Angers, France, 07/2020

[JI.1] **Quang-Duy Nguyen**, Catherine Roussey, Maria Poveda-Villalón, Christophe de Vaulx, and Jean-Pierre Chanet, *"Development Experience of a Context-Aware System for Smart Irrigation using CASO and IRRIG ontologies"*, Special Issue "Semantic Technologies Applied to Agriculture", MDPI Applied Sciences, 03/2020

[CI.2] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vaulx, and Jean-Pierre Chanet, *"Ontological Requirement Specification for Smart Irrigation Systems : A SOSA/SSN and SAREF Comparison"*, Proceedings of the 9th International Semantic Sensor Networks Workshop (SSN) of the 17th International Semantic Web Conference (ISWC), Monterey, United States, 10/2018

[CF.1] Maria Poveda-Villalón, **Quang-Duy Nguyen**, Catherine Roussey, Christophe de Vaulx, and Jean-Pierre Chanet, *"Besoins ontologiques d'un système d'irrigation intelligent : Comparaison entre SSN et SAREF"*, Actes des 29es journées francophones d'Ingénierie des Connaissances (IC), Nancy, France, 07/2018

[CI.1] **Quang-Duy Nguyen**, Julien Montavont, Nicolas Montavont, and Thomas Noël, *"RPL Border Router Redundancy in the Internet of Things"*, Proceedings of the 15th International Conference on Ad-Hoc Networks and Wireless (ADHOC-NOW), Lille, France, 07/2016

Research Skills

- Project Management
- System Implementation
- Scientific Writing
- Presentation

Linguistic

- Vietnamese
- French
- English
- Japanese

Technical Skills

Standard	OPC UA, AAS, RAMI 4.0, ISA-95
IT Network	TCP/IP, UA PubSub, MQTT, REST
OT Network	Profinet, MODBUS, UA FX
Cybersecurity	AES-CTR, TLS, JWT
OS/Middleware	Linux, Zephyr, BaSyx, ROS2
Methodology	Mini-Waterfall, LOT, Agile, MDE
Vocabulary	SOSA/SSN, CASO, IRRIG
Tool	Papyrus, Protégé, Wireshark, UaExpert

Programming

- C
- Java
- C++
- Python
- Shell script
- Node-Red/JS
- SQL/SPARQL
- SWRL/SHACL